

## University of Detroit Mercy Course Syllabus

### Evolution BIO 420

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Semester: Fall 2006  
Lecture time: MWF 12:00 to 12:50 pm

Text: Freeman, S. and J.C. Herron. 2004. *Evolutionary Analysis* 3rd ed. Prentice Hall, Upper Saddle River, NJ.

Office hours: Faculty office hours change each term and may be accessed by visiting <http://ids.udmercy.edu/hollar/biotutor> . Ms. Jackman also keeps a list of faculty office hours.

#### **Description:**

A comprehensive analysis of organic evolution from the level of the molecule to the population. This course will explain the concept of evolution, the evidence for evolution, the mechanisms driving evolution and the causes of biological diversity. The course covers concepts in population genetics, cladistics, natural selection and speciation.

#### **Objectives:**

All of the natural sciences have a central theory that ties together the entire discipline. Chemistry has the atom theory, physics has thermodynamics, and biology has evolution. Thus, the main objective of this course is to develop the student's ability to explain the central tenets of biology and to use these concepts in his or her professional and personal life. Although major concepts in natural history will be discussed (e.g., mass extinctions, the fossil record), this course will not focus on paleontology or geology. Questions about the relationship between science and religion with regard to evolution will be discussed.

#### **Methods:**

The course is a traditional lecture course with readings from the text. Open discussion is strongly encouraged. To help you develop your analytical skills, you should be trying the questions at the end of each chapter. Additional materials such as videos may also be used to help you comprehend the topics in each chapter.

#### **Grading:**

Grades will be based on four exams of equal value. The exams may not have the same number of questions each time, but the grades will be recorded as percentages so that

each test will be worth the same value in terms of the overall course. Examinations may consist of essay, short answer, fill in the blank or multiple choice questions. True and false and matching will not be used. The questions will be formulated to determine your knowledge of topics covered in the lectures and the readings and to test your ability to apply what you know to actual situations in the real world. The last hourly will be given during the first hour of the final exam period and will not be comprehensive.

**Make ups:**

Make-ups will be essay and will include problems if problems were on the original exam that you missed. The make up exams will be administered during the second hour of the final exam period. You do not need to call me or see me if you missed an exam. Just come up to the desk after the last hourly and say that you are ready to take your make up exam

**Exam dates:**

**Exams will be given on Sept.26, Oct.22, Nov. 12 and Dec. 11.**

**Grading Scale:**

A	=	95%	to	100%	C	=	65%	to	69%
A-	=	90%	to	94%	C-	=	60%	to	64%
B+	=	85%	to	89%	D+	=	55%	to	59%
B	=	80%	to	84%	D	=	50%	to	54%
B-	=	75%	to	79%	F	=	49%	to	0%
C+	=	70%	to	74%					

**Attendance:**

While I expect that you will attend class regularly, I do not take attendance. I realize that emergencies may arise which prevent you from being in class. Do not call to tell me that you will be unable to attend. Simply make arrangements with another student to get the notes. Attending class is beneficial in the sense that all of the material on the exams will be covered in class. If something is covered in class that is not in the textbook, it is fair game for the exam. Conversely, if something is in the textbook that is not mentioned in class, it is not on the exam.

The time in class is a time when we are all working together. It shows a lack of courtesy to fellow students to disrupt the class by entering and leaving the room, getting up to plug in your tape recorder, etc. If you have an emergency, please leave quietly and return with as little disruption as possible. If you know ahead of time that you will be leaving for a doctor's appointment or other event, please sit on the end of a row so that you do not have to disrupt other students as you leave. If you come in late, sit at the end of a row in the

back. You may have food in class, but you must bring it with you before class begins. Do not get up, go get a drink, and return as this is disruptive to the other people who are in the class.

### **Academic Honesty:**

I expect that all of the work turned in to me will be the SOLE work of the student whose name appears on the paper. Material extracted from published sources will be properly referenced. Students who plagiarize any part of an assignment or an exam (yes, even one question) will receive a zero for the assignment or exam with no opportunity to make up the work. The information given in the [Use of Sources](#) which accompanies this syllabus will be considered the standard by which plagiarism is judged. Passing off someone else's work as your own is academic misconduct as described in the Student Handbook of Policies and Procedures and will be reported to the Dean's Office. Students disciplined for cheating are not considered good candidates for admission to dental or medical school.

### **Schedule of Topics:**

The schedule of topics is a tentative one and may change during the term. Class discussions, questions, etc. make it impossible to specify how much time each topic may need. Nevertheless, I shall attempt to keep to the schedule as closely as I can.

Date	Chapter	Topic to be covered
Sept. 3, 5, 8	1	Case for evolutionary thinking
10, 12, 15	2	Evidence for evolution
17, 19, 22	3	Natural selection
24	4	Mutation
26		EXAM
Oct. 29, 01	4	Mutation continued
03, 06, 08	5	Population genetics I: Selection and mutation
10, 13, 15	6, 7	Population genetics II: Drift and non-random mating, linkage disequilibrium
17, 20	8,9	Adaptation and sexual selection
22		EXAM
24, 27	10,11	Sexual selection, kin selection, and life history
29, 31	10, 11	Sexual selection, kin selection, and life history (continued)
Nov. 3, 5, 7, 10	12,13	History of life, making evolutionary trees
12		EXAM
14		Continued from before the exam
17, 19, 21	14,15,16	Selected topics from origin of life, early life forms. Human evolution
24	16	Macroevolutionary patterns
26	18	Molecular evolution

Dec. 01	18	Molecular evolution continued
3, 5	17, 19	Development and evolution
11		<b>FINAL EXAM Thursday 11:00 to 12:50</b>